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RESPONSE OF PIGEONPEA (*Cajanus cajan*) VARIETIESTO VARYING PLANT POPULATION DURING *RABI* IN SOUTHERN AGRO - CLIMATIC ZONE OF ANDHRA PRADESH

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ABSTARCT

A field experiment was conducted at S. V. Agricultural College wetland farm, Tirupati, to study the performance of pigeonpea varieties under varied plant population in Southern Agro-climatic Zone of Andhra Pradesh during rabi 2010. The treatments consisted of combination of two factors viz., four varieties (LRG-41, TRG-7, TRG-22 and ICPL-85063) and three plant populations (45x15cm-1,48,148 plants ha-1,60x15cm-1,111,11 plants ha-1 and 75x15cm-88, 888 plants ha-1). The variety ICPL-85063 at spacing of 45x15cm recorded the higher growth parameters, yield attributes and yield. The present study has revealed that he variety ICPL-85063 spaced at closer spacing of 45x15 cm having plant population of 1, 48, 148 plants ha-1 resulted in higher seed yield and economic returns followed by TRG-22 and LRG-41 at plant population.

KEYWORDS: Pigeonpea, Plant population & Varieties

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INTRODUCTION

In Andhra Pradesh pigeonpea is cultivated in more than 5 lakh hectares both during *kharif* and *rabi* season. Despite the uses of best varieties during *kharif* season, the average yieldis 500 kg ha-1when compared to *rabi* season. Use of low inputs like use of less fertilizers, no proper weeding, lack of irrigation, minimalorno pesticides application attributes to lesser yields. Pigeonpea is cultivated in *kharif* season is more pronetopod borer and with a result, consistently yields are lower in *kharif* season. Greater attention is now being given to manage the crop because it is in high demand at remunerative prices. Since the area under post-rainy season crop is increasing, this led researchers to find out the plant population requirement for pigeonpea crop during *rabi* season.

MATERIAL AND METHODS

The experiment was laid out in randomized block design with factorial concept, replicated thrice. The treatments consisted of combination of two factors, four varieties (LRG-41, TRG-7, TRG-22and ICPL-85063) and three plant populations (148148 plants ha-1,111111 plants ha-1,88888 plants ha-1).The soil of the experimental field was sandy loam in texture with pH8.8 and 0.22% organic carbon. The available nitrogen, phosphorus and potassium were 186.4 kg ha-1, 25.8 kg ha-1 and 183.6 kg ha-1 respectively.

RESULTS AND DISCUSSIONS

The highest number of pod bearing branches plant-1, number of pods plant-1, number of seeds pod-1, and pod length were recorded by the variety ICPL-85063 at higher plant population of 148148 plants ha-1 while the

lowest yield attributes were recorded by the variety TRG-7 at plant population of 88888 plants ha-1. Highest and lowest test weight was recorded by the varieties ICPL- 85063 and TRG-7 respectively. These results were in line with findings of Lakshminarayana (2003) and Siag *et al.* (1993).

Pigeonpea varieties and different plant population of differed significantly in seed yield and stalk yield. The highest seed and stalk yields were recorded by the variety ICPL-85063 at higher plant population of 148148 plants ha-1 while the lowest seed and stalk yields were recorded by the varietyTRG-7 at plant population of 88888 plants ha-1. Among the interaction effects, ICPL-85063 variety recorded the highest seed yield and stalk yield at higher plant population of148148 plants ha-1 which was on par with TRG-22 at the same plant population. Similar findings were reported by Siag *et al.*(1993), Puste and Jana(1996), Srinivasan *et al.* (1997),Karle and Pawar (1998), Desai and Intwala (1999), Islam *et al.*(2008).

CONCLUSIONS

The present study has revealed that the variety ICPL-85063 having plant population of 148148 plants ha-1 (at closer spacing- of 45x15cm) was best in realizing growth, yield and economic returns.

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APPENDICES

Table 1: Yield Attributes and Yield of Pigeonpea Varieties as Influenced by Different Plant Populations

Treatment	No. of Pod Bearing Branches Plant-1	No. of Pods Branch-1	No. of Seeds Pod-1	Pod Length (cm)	Test Weight (g)	Seed Yield (kg ha-1)	Stalk yield (kg ha-1)
Varieties							
LRG-41	14.6	23.7	3.8	4.8	11.2	1496	4305
TRG-7	12.2	20.9	3.6	4.5	8.3	997	3969
TRG-22	16.4	24.8	3.9	5.1	10.6	1746	4905
ICPL-85063	17.4	26.8	4.0	5.1	12.5	2060	5789
SEm±	0.1	0.6	0.03	0.03	0.09	26.92	87.51
CD(P=0.05)	0.3	1.3	0.1	0.1	0.2	54	176
Spacings							
45x15cm (1,48,148 plants ha-1)	14.9	24.6	3.9	5.3	10.8	1859	5648
60x15cm (1,11,111 plants ha-1)	15.1	24.2	3.9	4.8	10.6	1493	4623
75x15cm (88,888 plants ha-1)	15.4	23.4	3.8	4.6	10.6	1276	3955

Table 1: Contd.,							
SEm±	0.1	0.5	0.03	0.03	0.08	23.31	75.79
CD(P=0.05)	0.3	1.1	0.1	0.1	NS	47	153
Interaction							
SEm±	0.2	1.0	0.05	0.06	0.15	46.62	152
CD(P=0.05)	0.6	2.2	0.1	0.1	0.3	94	305